Application No. 09/447,312
Amendment Dated October 26, 2004
Reply to Office Action of August 2, 2004

REMARKS

This is a full and timely response to the non-final Office Action mailed August 2, 2004. Reexamination and reconsideration in light of the foregoing amendments and following remarks is respectfully solicited.

Claims 1-27 remain pending in the application, with claims 1, 7, 11, 16, and 23 being the independent claims. Claims 11-14 have been amended herein. No new matter is added by the amendments.

Rejection under 35 U.S.C. §101

At page 2 of this Office Action, claims 11-15 are rejected under 35 U.S.C. §101 because "the language of the claims [claim 11] raises a question as to whether the claim is directed merely to an abstract idea...". Applicant submits that claims 11-15, as amended, are directed to patentable subject matter within the purview of the statutory subject matter under 35 U.S.C. §101.

In particular, amended independent claim 11 recites "[a] method of determining the transmitted order of a received data packet relative to other received data packets". Although not specifically stated in the language of original claims 11-15, Applicant believes that original claims 11-15 clearly set forth a method directed to packets of information, or data packets, such as generally used in communications systems and more particularly in packet switched networks or other network systems as mentioned with respect to the Field of the Invention, the Background of the Invention, and the Detailed Description of the Drawings of Applicant's Specification. Claims 11-14 are amended to clarify this understanding without intending to relinquish any subject matter of the claimed invention and possible equivalents thereof.

Because claim 11 is amended to recite a method directed to data packets, Applicant submits that amended claim 11 is directed to statutory subject matter under 35 U.S.C. §101. Because claims 12-15 depend from claim 11 or an intermediate claim depending therefrom, claims 12-15 are likewise directed to

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statutory subject matter under 35 U.S.C. §101. From the foregoing discussion and amendments to claims 11-14, Applicant respectfully submits that rejection of claims 11-15 under 35 U.S.C. §101 is overcome.

Rejection under 35 U.S.C. §102(b)

At page 2 of this Office Action, claims 1-6, 16-19, and 23-26 are rejected under 35 U.S.C. §102(b) as being anticipated by Hosford et al. (U.S. Patent No. 5,996,450), hereinafter Hosford. Applicant submits that claims 1-6, 16-19, and 23-26 are not anticipated by Hosford because Hosford does not disclose all of the features of Applicant's claimed invention.

Independent claim 1 relates to a method of adding packet ordering information to a plurality of data packets that includes applying error codes to each of the plurality of data packets and recites, *inter alia*, masking each of the plurality of data packets to which the error detection codes have been applied.

Independent claim 16 relates to a communications device that includes a packet receiver, a mask store, an unmasking device configured to unmask received packets and recites, *inter alia*, an error detection device coupled to the unmasking device, the error detection device being configured to detect errors in unmasked received packets.

Independent claim 23 relates to a communications device that includes a packet formatter, a forward error device, and a mask store, and recites, *inter alia*, a masking device coupled to the mask store and the forward error device and responsive thereto to mask each of the formatted packets to which the error codes have been applied.

Hosford discloses a mask for encrypting frames of data such as transmitted in wireless cellular communication. The mask differs for each respective frame and is based on a variable value to produce a variable mask. The data frame and variable mask are combined to produce an encrypted frame. Part of the background discussion of Hosford details a digitized speech frame as a block of a

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pre-determined number of binary digits together with various binary check digits and coding bits. The check digits and coding bits are used for error detection and error correction (see Col. 1, lines 19-23). In other words, the data frame is a block of binary digits composed of digitized speech and error detection/correction bits.

Hosford does not teach "masking each of the plurality of data packets to which the error detection codes have been applied" as recited in amended claim 1 nor a "masking device coupled to the mask store and the forward error device and responsive thereto to mask each of the formatted packets to which the error codes have been applied" as recited in claim 23. Although Hosford discloses data frames composed of check digits and coding bits with respect to background, Hosford does not elaborate any further on such check digits and coding bits. Additionally, Hosford makes no distinction regarding the data frames that are encrypted. If any inference may be made regarding data frames having check digits and coding bits, Hosford would hypothetically teach that all data frames, with or without check digits and coding bits, are combined with a fixed voice privacy mask (FVPM).

Further, although Hosford is related to digitized speech frames, Hosford fails to teach anything related to applying error detection codes. Instead, to assert that Hosford teaches error detection codes is to an assume that the error detection/correction bits within the data frame as taught by Hosford are similar to error detection codes.

Hosford does not teach "a mask store" as recited in claims 16 and 23. It is asserted that a mask store is taught by Hosford because a different mask is generated for each data frame. In fact, Hosford is silent as to any element that stores either a FVPM or a rolling voice privacy mask (RVPM) as taught therein. At best, Hosford discloses that an initial value associated with the FVPM is stored and occasionally a new initial value is randomly generated and stored (see Col. 3, lines 43-50). Hosford discloses that the FVPM is combined with a variable value that differs for each frame to generate a variable voice privacy mask which is then combined with the speech frame (see Col. 2, line 65 - Col. 3, line 4) which clearly is contrary to any notion of storing masks. Furthermore, even if Hosford were to

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hypothetically disclose a mask store, Hosford does not disclose or suggest how the "mask store" couples with the other elements, such as coupling of the unmasking device with the mask store and the packet receiver as recited in claim 16.

Additionally, Hosford does not teach "an error detection device...being configured to detect errors in unmasked received packets" as recited in claim 16 nor a "forward error device coupled to receive the formatted packets from the packet formatter and configured to apply error codes to the formatted packets" as recited in claim 23. The only remotely relevant discussion disclosed in Hosford is decryption of the encrypted frames by combining a received frame with the variable voice privacy mask to recover the original speech frame. A brief mention of check digits and coding bits are mentioned by Hosford in the context of a digitized speech frame composition, but nothing is specifically detailed in Hosford about error detection. Hosford is not concerned with error detection, but rather is focused on encryption/decryption of speech frames.

Because of the foregoing differences between claims 1, 16, and 23 and Hosford, Applicant submits that claims 1, 16, and 23 are patentably distinguished from Hosford. Because claims 2-6, 17-19, and 22-26 depend from one of claims 1, 16, and 23, or an intermediate claim depending therefrom, Applicant submits that claims 2-4, 6, 17-19, and 22-26 are equally patentably distinguished from Hosford.

Applicant further submits that claim 3 is further distinguished from Hosford. As previously mentioned hereinabove, Hosford does not distinguish speech frames having check digits and coding bits from speech frames without check digits and coding bits. Hosford does not disclose "each of the plurality of data packets to which the error detection codes have been applied is masked with one of the plurality of ordering masks [emphasis added]".

Applicant further submits that claim 6 is further distinguished from Hosford. Hosford does not disclose or suggest "the plurality of ordering masks includes a sufficient number of ordering masks for a receiver to identify a correct order of two packets received out of order and received a distance apart in time less than or equal to the maximum latency variability" as recited in claim 6. In fact, Hosford

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makes no mention as to the number of FVPMs or RVPMs because Hosford
discloses generating respective frame counters in synchronization and
synchronizing respective frame counters at a transmitting station and a receiving
station. Hosford discloses an entirely different encryption/decryption method and is
not concerned with a plurality of ordering masks as claimed in claim 6.

Applicant further submits that claim 17 is further patentably distinguished
from Hosford. Although Hosford briefly mentions check digits and coding bits, as
previously mentioned hereinabove, Hosford does not disclose a controller
"configured to <u>evaluate error information</u> received from the error detection device,
and further configured to <u>command the mask store to provide masks</u> to the
unmasking device" as recited in claim 17. Hosford is concerned with encryption by
varying a value for each data frame that is combined with the FVPM and decryption
of the same and not with evaluating error information.

Rejections under 35 U.S.C. §103

At page 6 of this Office Action, claims 5 and 27 are rejected under 35 U.S.C.
§103(a) as being unpatentable over Hosford in view of Weiss (U.S. Patent No.
4,754,482). Because of the foregoing discussion regarding the differences between
the claims 1 and 23 and Hosford and because claims 5 and 27 depend from claims
1 and 23, respectively, Applicant submits that claims 5 and 27 are not obviated by
Hosford in view of Weiss because neither Hosford and Weiss, either alone or in
combination, disclose all of the features of Applicant's claimed invention.

Applicant further submits that a prima facie case of obviousness has not
been established. To establish a prima facie case of obviousness under 35 U.S.C.
§103, three requirements must be met. First, there must be some suggestion or
motivation, either in the references themselves or in the knowledge generally
available to one of ordinary skill in the art, to modify the reference or to combine
reference teachings. Second, there must be a reasonable expectation of success.
Finally, the prior art reference (or references when combined) must teach or suggest

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all the claim limitations. M.P.E.P. 2143. The following discussion explains that a prima facie case of obviousness has not been established.

Applicant submits that there is no motivation to combine Weiss with Hosford. Weiss discloses a synchronizing encryption and decryption system where a cyclic redundancy code (CRC) is generated for each data block using both encrypted data for such data block and a sequence number appended to the encrypted data. The sequence number is derived from a local counter that is synchronized to a counter at a transmitting or storing apparatus. While Weiss and Hosford are both distantly related to encryption of data, Weiss makes no mention of masks in contrast with Hosford that discloses privacy masks. Instead, Weiss makes reference to using the sequence number in generating the CRC. The CRC "is a multi-bit code that is generated by circuit 308 after all data bits have been passed to the CRC circuit" (see Weiss, Col. 10, lines 48-53) which is completely different from the privacy masks disclosed by Hosford.

Applicant submits that there is no reasonable expectation of success in combining Weiss with Hosford because each teaches a different encryption method based on different encryption tools. Weiss discloses using a CRC based on encrypted data and a corresponding sequence number for each data block, whereas Hosford discloses using privacy masks, generated using a standard algorithm, in combination with a variable value. A hypothetical combination of Weiss with Hosford, using both CRC and privacy masks, produces an inefficient encryption method which is contrary to the objects of both Weiss and Hosford.

Finally, Applicant submits that even if Weiss were to be combinable with Hosford, the resulting combination does not teach all of the features of Applicant's claimed invention. Neither Hosford nor Weiss, either alone or in combination disclose "masking each of the plurality of data packets to which the error detection codes have been applied [emphasis added]" as recited in amended claim 1, from which claim 5 depends, nor a "masking device coupled to the mask store and the forward error device and responsive thereto to mask each of the formatted packets

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to which the error codes have been applied [emphasis added]" as recited in claim 23, from which claim 27 depends.

At page 6 of this Office Action, claims 7-10 are rejected under 35 U.S.C. §103(a) as being unpatentable over Weiss in view of Hosford in view of Gross et al. (U.S. Patent No. 5,761,431), hereinafter Gross. From the preceeding discussion, Applicant submits that claims 7-10 are patentable over Weiss in view of Hosford in view of Gross because a prima facie case of obviousness has not been established with respect to claims 7-10.

Additionally, Applicant submits that Weiss, Hosford, and Gross, either alone or in combination, do not teach "applying at least one ordering mask to the received packet in a known order from a list of ordering masks to find a current ordering mask that was previously used to mask the received packet" as recited in claim 7. None of Weiss, Hosford, and Gross mention a list or ordering masks. Further, Applicant submits that analogizing the sequence numbers disclosed by Weiss with a privacy mask disclosed by Hosford is inappropriate because Hosford already mentions using a frame counter for forming a variable mask. At best, the frame counter disclosed by Hosford is more suitably analogized to the sequence numbers disclosed by Weiss.

At page 8 of this Office Action, claims 11-12 and 14-15 are rejected under 35 U.S.C. §103(a) as being unpatentable over Weiss in view of Dent et al. (U.S. Patent No. 5,353,352), hereinafter Dent. From the preceeding discussion, Applicant submits that amended claims 11-12 and 14 and claim 15 are patentable over Weiss in view of Dent because neither Weiss or Dent disclose all of the steps of amended independent claim 11.

Dent discloses using a different binary mask, or scrambling mask, to scramble each block-coded information signal. The same scrambling mask is used at the receiver to descramble the information signal from a composite signal. The scrambling masks are ordered based on the signal strength of a respectively assigned coded information signal and are selected to minimize errors due to

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interference from overlapping signals, such as based on auto- and cross-correlation properties (see Col. 3, lines 7-13).

Applicant submits that neither Weiss or Dent mention the step of "setting a temporary ordering mask equal to a next ordering mask in a list of ordering masks" as recited in amended claim 11. Weiss is silent regarding ordering masks and Dent mentions scrambling masks in the context of signal strength, but neither reference discloses the aforementioned step. Further, Applicants submit that a prima facie case of obviousness has not been established because there is no motivation to combine Weiss with Dent.

First, Weiss is not concerned with scrambling masks as disclosed by Dent. Second, Dent discloses application of scrambling masks during decoding based on ordered signal strength (see Dent, Col. 3, lines 11-15 and Col. 15, lines 29-43). At best, Weiss is directed to sequence number based decryption by comparing a computed block error correction code with a received copy of an error correction code (see Weiss, Col. 6, lines 29-39 and Col. 11, lines 45-57). Any hypothetical combination of Weiss with Dent results in an inefficient or non-optimal coding technique because of the use of both CRC and scrambling masks.

Because of there is no motivation to combine Weiss with Dent and because Weiss with Dent do not disclose all of the features of amended claim 11, Applicant submits that amended claim 11 is not obviated by Weiss in view of Dent. Because of the foregoing discussion regarding the patentability of amended claim 11 and because amended claims 12 and 14 and claim 15 depend from amended claim 11 or an intermediate claim depending therefrom, Applicant submits that amended claims 12 and 14 and claim 15 are likewise not obviated by Weiss in view of Dent.

At page 10 of this Office Action, claim 13 is rejected under 35 U.S.C. §103(a) as being unpatentable over Weiss and Dent as applied to claim 11 and in further view of Gross. From the preceeding discussion, Applicant submits that amended claim 13 is patentable over Weiss in view of Dent and further in view of Gross because the cited references do not disclose all of the features of amended claim

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11 and because a prima facie case of obviousness has not been established with respect to amended claim 11.

At page 11 of this Office Action, claims 20-21 are rejected under 35 U.S.C. §103(a) as being unpatentable over Hosford in view of Dent. From the foregoing discussion regarding the patentability of claim 16, Applicant submits that claims 20-21 are patentable over Hosford in view of Dent because the cited references do not disclose all of the features of the claimed invention.

Additionally, Applicant submits that a prima facie case of obviousness has not been established with respect to claims 20-21 because there is no motivation to combine Hosford with Dent. As previously mentioned, Dent discloses application of scrambling masks during decoding based on ordered signal strength (see Dent, Col. 3, lines 11-15 and Col. 15, lines 29-43). In contrast, Hosford is directed to frame counter based decryption by combining a variable mask generated from a frame counter with an encrypted data frame (see Weiss, Col. 6, lines 29-39 and Col. 11, lines 45-57). Applicant submits that Hosford teaches away from Dent because each reference has an entirely different method of decryption.

At page 12 of this Office Action, claim 22 is rejected under 35 U.S.C. §103(a) as being unpatentable over Hosford. From the foregoing discussion regarding the patentability of claim 16 and because claim 22 depends from claim 16, Applicant submits that claim 22 is patentable over Hosford because Hosford does not disclose all of the features of claim 16.

In view of the foregoing, Applicant respectfully submits that rejection of claims 5, 7-15, and 20-22 under 35 U.S.C. §103(a) has been overcome and requests withdrawal of the same.

Conclusion

In view of Applicant's amendments and remarks, it is respectfully submitted that the rejections under 35 U.S.C. §§102 and 103 have been overcome. Accordingly, Applicant respectfully submits that the application, as amended, is now in condition for allowance, and such allowance is therefore earnestly requested.

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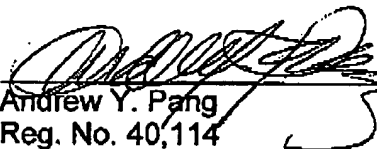Reply to Office Action of August 2, 2004

Should the Examiner have any questions or wish to further discuss this application, Applicant requests that the Examiner contact the Applicant's attorneys at 480-385-5060.

If for some reason Applicant has not requested a sufficient extension and/or have not paid a sufficient fee for this response and/or for any extension necessary to prevent abandonment on this application, please consider this as a request for an extension for the required time period and/or authorization to charge Deposit Account No. 50-2117 for any fee which may be due.

Respectfully submitted,

Dated: October 26, 2004   By: _____
                                            Andrew Y. Pang
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